and scientific insight, will have to look up the Author's papers in specialist journals. But those many others who want a diverting documentation of assorted wildlife problems, will find here a first-rate account of what happens when the pristine world of Nature comes up against the (all too often) antagonistic world of technological Man. Some readers might feel that Dr LaBastille is unduly derogatory of 'development technocrats' and others who, whether wittingly or not, seek to modify and often transform the few habitats that are left to wildlife. In many instances, it is possible to achieve complementary accord between the survival needs of wild creatures and the legitimate aspirations of Third World communities—and economists may have as much worthwhile advice to offer as do ecologists with regard to the key question: How shall Man live in sustainable equilibrium with the One Earth-Home that supports millions of other species?

To these issues, Dr LaBastille directs less attention than to burning problems of 'no-return disruption' of ecosystems: her work draws her to situations of 'ecological flashpoints' and 'thresholds of outright danger', i.e. those situations where Man runs the risk of imposing irreversible injury on his life-support system. In short, the Author's assignments tend to be described in black-white terms: and in most instances in her book, her stance is justified—especially when she is campaigning on behalf of a species that is on the verge of extinction.

All in all, then, this is a stimulating as well as interesting book. It is an account written as much from the standpoint of one person's conviction as from the standpoint of clinically objective science. This comment is not intended to detract at all from the substance of the book. It merely emphasizes the stirring spirit that informs on every page, producing a book that is packed with detail and devoid of dull narative. More power to your elbow, Dr LaBastille: let's have some more.

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The Ecology of Tomorrow's World: Industry's Environment, by JOHN ELKINGTON. Associated Business Press, Ludgate House, 107–111 Fleet Street, London EC4A 2AB, England, UK: xii + 311 pp., illustr., £12, 1980.

The cause of environment in the world today is at a turning point. The easy days of the fight against obvious pollution in the 1960s and 1970s are over. Now the battle has been largely won, but victory by this route will never be total, as the economic cost in a healthy world economy of the 1980s will be prohibitive. What is required is an environmental policy which is preventive rather than curative, anticipatory rather than reactive—and, above all, cost-effective.

This is the central message of John Elkington's book, which is unusual in giving full voice to the environmentalists' cause as well as a voice of understanding for the legitimate concerns and fears of industry. He develops the theme by looking squarely at industrial enterprises and seeing how little, or sometimes how much, they have adapted themselves to the environmental challenge. He also looks at the strength of the ecological movement as a force which industry will have to reckon with, regardless of the economical climate and ultimate costs.

The question thus is: whether industry and the environmentalists will work together or against each other. In separate chapters the Author outlines how such mutually profitable cooperation can work out for industrial processes by making them less wasteful, for industrial projects by making them fit better with natural systems, and for products by making them less harmful. All this requires the respecting of Nature's laws by the industrialist, by putting himself in the shoes of those who would protect Nature. By doing this, industry will prosper and expand. Ultimately, in the future, it is to be hoped that this integration, which is now being set in motion, will lead to new life-styles and new development patterns that will allow compatible economic growth and environmental quality.

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Sexual Strategy, by T. HALLIDAY. Oxford University Press, Oxford–New York–Toronto–Brisbane: 158 pp., illustr., 25.5 × 19 × 1.8 cm, £6.95, 1980.

The sex instinct, Robert Musil once observed with considerable understatement, mysteriously leads even the most circumspect people to behave in ways that have a lot in common with insanity. He might just as well have included other animals, as this sober and fascinating introductory text amply proves: nothing but the deepest and most powerful of urges could make the male *Eleutherodactylus fitzingeri* (a small Central American frog) persist with amazing courage in the mating call that attracts predators as well as the female of his own species; and the male East African mantid pursues the female even though she almost invariably eats him while he is still mating with her.

Less sanguinary wonders also await the reader: the male Corsican brook salamander seizes his prospective but usually unwilling mate by her tail and holds on until he can manoeuver himself into a position to copulate with her; female glow-worms, on the other hand, flash invitations to the males flying by overhead; and the male bustard courts the female by fluffing up his feathers gorgeously until he resembles a ruptured mattress.

As these examples suggest, Dr Halliday deals not with the actual techniques of copulating—which admit of relatively few variations—but with the dazzlingly varied ways in which animals, including the human being, attract mates. The sheer variety will leave the reader bewildered about what general similarities may lurk under all these differences—a highly desirable reaction to provoke in the secondary school or university student at whom both this book and the series to which it belongs are aimed.

As a reader with little formal training in biology, I found nothing in the data presented that I felt could have been significantly improved upon. The Author has necessarily had to be selective, and another working biologist—Halliday himself is a lecturer in biology at the Open University in London—would perhaps have cavilled at this or that, but personally I forbear. This volume

awakened in me the same sense of wonder and curiosity that it was meant to awaken in its intended readership; the prose is deliberately even-toned, illustrated with well-made drawings and photographs that nicely emphasize its various points. A biology teacher looking for a book to recommend as extra reading, or a student in search of more concrete examples than most textbooks offer, will go a long way before finding anything better.

The reservations I do want to offer concern the book's failure to suggest the difficulties with which the subject fairly bristles. Halliday recognizes what made scientists uncomfortable only half-a-century ago, namely that sexual strategies are goal-directed, and he inquires as to what the goal might be. 'For a long time biologists, naturalists, and the public at large, have been content with the explanation that when animals mate their purpose is to "perpetuate the species". If this was really their aim, males and females would, by mating, be acting cooperatively towards a common goal. However, the most cursory examination of the sexual behaviour of animals reveals countless examples in which males and females treat each other with great hostility and are clearly not behaving cooperatively. Female spiders and mantids very often eat their mates; male sticklebacks are frequently very aggressive towards females, male lions and langur monkeys kill the young of the female members of their social groups before they mate with them. Such apparently antisocial patterns of behaviour hardly seem designed to "perpetuate the species", and we must seek other kinds of explanation for their evolution' (p. 9).

This very promising start runs out into the rather disappointing, 'the "aim" of sexual strategy is ...to maximize the number of an individual's descendants' (p. 11). Even given Halliday's pardonably ambiguous definition of the book's subject as 'the behaviour that precedes, accompanies, and follows, the act of mating' (p. 9), does this conclusion really do justice to instances in which parents of both sexes kill their young in the nest? And if the reader thinks about it a little, the word 'maximize' hides a great many more problems than it solves; do these problems not deserve at least a passing mention?

Other difficulties seem to me to deserve a passing reference which they are not accorded: what are the causes and purposes of sexually deviant behaviour?; how can organisms, including human beings, participate in elaborate sexual strategies of which they have no understanding?; what role does sexual strategy in Dr Halliday's sense play in the psychological maturation of individuals?

Seemingly nobody can answer these questions, and we may have to wait whole generations before scientists even hit upon promising lines of research to take such problems away from those who do their thinking only in armchairs. Still less have we to say about the even grander questions of teleology and form onto which these relatively specialized matters open. Yet it seems to me that *Sexual Strategies* could have awakened scientific curiosity and wonder even more effectively than it does if it had reminded us that, in the background of such little mysteries as the mating of snails and angleworms, far larger mysteries abide.

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The Ecology of Regulated Streams, Edited by J. V. WARD & J. A. STANFORD. (Proceedings of the First International Symposium on Regulated Streams, held in Erice, Pennsylvania, 18–20 April 1979.) Plenum Press, New York, NY: vii + 398 pp., illustr., 25.7 × 17.0 × 2.8 cm, £22.05, 1979.

For more than five thousand years the construction of dams on rivers has directly or indirectly altered the pattern of river-flows downstream. Reservoirs constructed specifically for flood-control, and maintained empty so as to provide for the absorption of high-magnitude discharges, will obviously reduce the extremes and variability of flows. Reservoirs built for water-supply or power-generation are ideally kept full—that is, at spillweir level—but these will also have a marked effect upon the flow régime. Indeed, flow attenuation by temporary storage above the spillweir crest of the dam can, for large-surface-area reservoirs, significantly reduce flood magnitudes. Other physical, chemical, and biological, factors will also be directly altered by river impoundment: the downstream transmission of sediments, nutrients, and invertebrate drift, will be interrupted, and the water released from the reservoir may have a different quality from that of the natural flows. Furthermore, the alteration of the discharges and sediment loads below dams will induce changes of channel form, bed-morphology, and substrate composition, and the reduced frequency of floodplain inundation and increased channel stability will permit vegetation encroachment to the channel margin. Thus, considerable changes in the nature of lotic ecosystems may be induced by river regulation, and so many of the world's major rivers are now regulated that Ward & Stanford conclude that 'altered ecosystems below dams and diversions are now the most prevalent lotic environments on earth' (p. 4).

The Ecology of Regulated Streams contains twenty papers by selected authors from eight countries, and provides a welcome assimilation of international knowledge. The collection summarizes current understanding of the ecology of regulated streams, but with a perhaps unnecessarily strong emphasis upon the biological factors, in that many important studies of the hydrology, sedimentology, and morphology, of regulated streams are omitted. The papers are grouped into three sections: 'Topical Reviews', 'Geographical Reviews', and 'Special Topics'.

In the first section six papers provide 'state-of-the-art' summaries of particular problems. The Editors give an excellent review of the literature concerned with the effects of flow regulation upon the lotic benthos. All the investigations cited from both Europe and America report identifiable changes: the impact on standing crops of lotic zoobenthos is highly variable, but 80% of instances show a decrease in diversity. The relative abundance of some major groups (e.g. Ephemeroptera) does not always change appreciably, but group composition is often modified. Some major taxa (e.g. Trichoptera) respond inconsistently to flow regulation, whereas others exhibit a fairly predictable response irrespective of the operational schemes or other variables: the plecopterans, for example, are commonly reduced or eliminated for some distance below dams.

The second section 'Geographical Reviews', attempts to evaluate the need for future scientific inquiry into stream systems that have been altered by upstream im-